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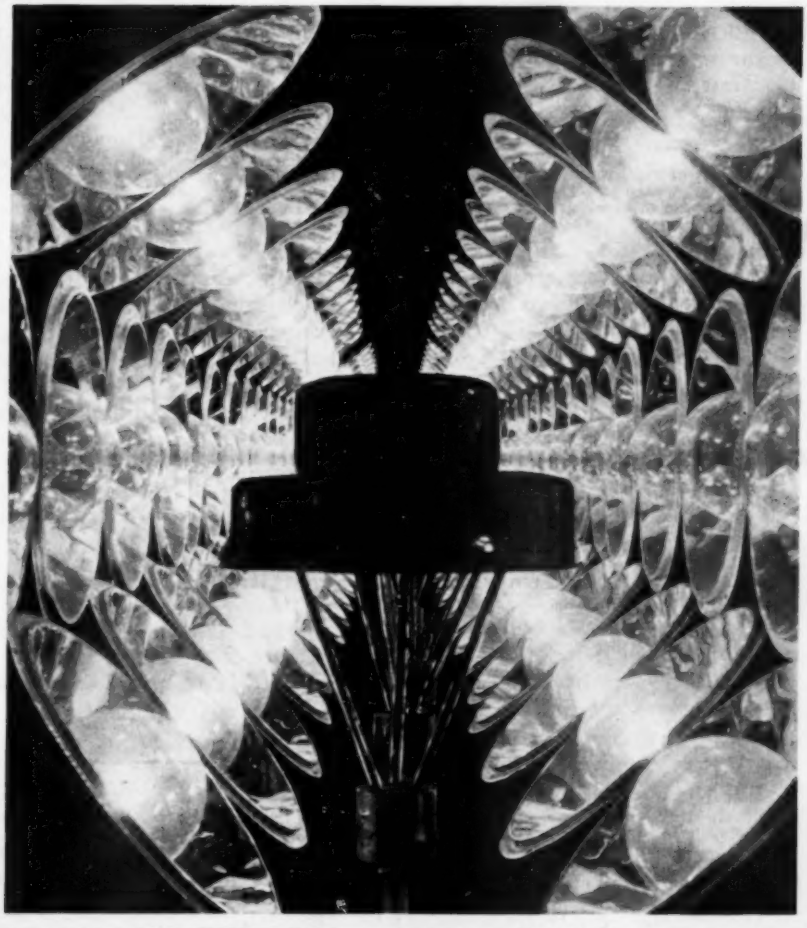
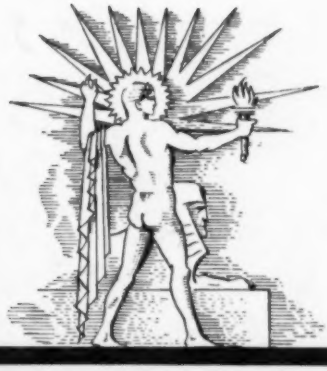
SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE •





April 13, 1940

Drying

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A SCIENCE SERVICE PUBLICATION

Do You Know?

Construction of the *Maginot* Line in France is estimated to have cost nearly three billion dollars.

The Bureau of Mines at Washington maintains the largest library of educational *motion pictures* in the world.

Otters enjoy sliding down hill, and deliberately make a snow or mud slide just for the fun of repeatedly going down it.

Locating a missing buoy sunk under water has been successfully achieved by a recording *sounding* device installed on a Coast Guard tender.

Rumania's second defense line includes a chain of *canals* which could be filled with oil by underground pipes and set afire in time of attack.

A new *Polaroid* device to make pictures fade gradually on and off a screen is designed to give amateur motion pictures a Hollywood touch.

A *pygmy hippopotamus* full-grown weighs about 450 pounds, in contrast with an ordinary hippo which may weigh 5,000 or 6,000 pounds.

Tests show that *winter wheat* in Kansas fails completely 71% of the time if seeded in dust, whereas plantings made when the soil is damp a foot deep fail only about one year in three, and when water has penetrated the soil two feet, odds are six to one against crop failure.

Great Salt Lake is a remnant of a lake once 300 miles long and 1,000 feet deep.

There were 149 epidemics of *yellow fever* in the United States between 1668 and 1893.

Texas has the longest international *frontier* of any State: 1,300 miles adjoining Mexico.

In remote regions of Alaska the 1940 *Census* is taken by local employees of the U. S. Bureau of Fisheries.

The Suez Canal route saves *shipping* about 4,500 miles in trade voyages between Europe and India.

Artificially *flattening* the head is an old custom found by anthropologists in every continent of the world, except Australia.

Most hoofed animals have horizontal *eye pupils*, possibly an aid in spying enemies while grazing.

Kudzu, a Japanese vine useful as shade and forage, is proving one of the best erosion-control plants in the Southeast.

True's Whale, a strange beak-nosed creature of the North Atlantic, was first captured in 1913, and specimens are still rare.

QUESTIONS DISCUSSED IN THIS ISSUE

Most articles which appear in SCIENCE NEWS LETTER *are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.*

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SCIENCE NEWS LETTER

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MEDICINE

Operation Gives Relief In Hypertension Cases

Severing Sympathetic Nerves Permits Flow Through Smaller Arteries; Not all Patients Benefited

SUCCESSFUL results in some cases from operation to relieve high blood pressure, performed on 300 patients in the past four years without a single death due to the operation, were announced by Drs. E. V. Allen and A. W. Adson, of the Mayo Clinic, at the meeting of the American College of Physicians in Cleveland.

Neither the operation described, however, nor present accepted medical treatment has entirely conquered this disease, which kills three times as many people each year as cancer, Drs. Allen and Adson pointed out.

Of the 300 patients operated on by cutting the sympathetic nerves to lessen resistance of the tiny arteries to flow of blood through them and thus to lower the blood pressure, follow-up information was available on 222. In 27 of these, "excellent" results were obtained, and in another 41 cases, the results were "fairly good." In 114 cases, the patients' blood pressure was reduced definitely and significantly for periods varying from two months to four years. Although the blood pressure in these patients subsequently rose to the high level before the operation, the doctors believe even the temporary lowering of the blood pressure was helpful. Many of these patients are still free from clinical symptoms, although the blood pressure is again high.

The operation should not be looked on as a last resort but should be performed early in the course of the high blood pressure condition, just as operation for cancer to be successful must be performed early, the doctors pointed out. Commenting on the drawbacks to both the operation and medical treatment for high blood pressure, they concluded:

"It is our impression that neurosurgical treatment (the operation) of essential hypertension has contributed substantially to the treatment of this disease. However, neither medical nor neurosurgical treatment has satisfactorily solved the problem of treatment of this malignant condition and it must be borne in mind that sympathectomy is indicated in only a small percentage of all patients with hypertension who have a progressive disease. There is still great opportunity for advances in therapeutics."

Science News Letter, April 13, 1940

Prevention of Anemia

PERNICIOUS anemia, once hopeless disease whose victims now live out their normal lifespan, thanks to liver, can soon be prevented as well as cured. The method for doing this was announced by Dr. John M. Askey, University of Southern California School of Medicine, to the College of Physicians.

Liver will be the preventive substance, as it is now the curative substance for the disease. But doctors will know which patients are going to develop pernicious anemia and will start the liver treatment in time to forestall development of the disease, Dr. Askey predicted.

"The scheme allowing the physician to suspect those who will later develop the disease depends upon a peculiarly helpful finding," Dr. Askey said. "Lack of acid in the stomach means nothing important in an ordinary person, but in a person in whose family pernicious anemia is present it immediately puts him in the potential class. A person with acid in the stomach practically never develops pernicious anemia—even the relative with no acid may never develop the disease, but he must be observed.

"Studies of 61 relatives with stomach analyses led to the identification of ten as potential cases of pernicious anemia. Of these ten, two have developed early signs of the disease but are under adequate treatment. Several others have early signs and will be watched closely. Two relatives who refused stomach analyses three and five years later developed the disease, both with crippling disability which will permanently handicap them. It is this reluctance of normal relatives to have a stomach analysis done which is preventing accumulation of data which will help to solve the problem."

"Treatment now saves lives, but due to the insidious onset of the diesase, patients often are not recognized early because they do not consult a doctor until the disease is far advanced. By the time the doctor sees them, 75% have developed damage to the nervous system, and in a small percentage there is damage

SKID PREVENTION AT HOME

First aid to over-waxed floors: a robot "stand-in" that measures the slipperiness of floors to prevent dangerous falls invented by Edgar C. Barnes, Westinghouse industrial hygiene engineer. Slips and falls cause an estimated 350,000 industrial U.S.A. accidents each year and many home accidents. A man walking across a slippery floor is simulated by a miniature bob-sled supported on three little leather runners carrying a hundred-pound weight. Pulled by a spring balance across a waxed surface, the amount of pressure required both to start it and to keep it moving is read, telling how easily a person may slip and how far the slip will carry him.

to the spinal cord severe enough to cause crippling and disability which is not satisfactorily relieved by liver treatment."

Science News Letter, April 13, 1940

Clue to Leukemia Problem

A CLUE which might lead to a successful attack on leukemia, rapidly fatal disease marked by too many white cells in the blood, was presented by Drs. Joseph Kaufmann and Louis Lowenstein, of Montreal, to the College of Physicians.

At present, they stated, no specific cause for the leukemias—there is more than one type of this disease—and no specific treatment exists. The disease terminates fatally, after an average duration of about 10 weeks, usually by exhaustion, anemia, hemorrhage, or an acute complicating infectious disease. Temporary slight remissions, when the patient seems better, may occur.

The clue which the Montreal doctors believe worthy of further investigation in the hope of gaining useful knowledge for fighting the disease is the question of an arrest of maturation, or growing-up, of the white cells at a certain level, possibly analogous to an arrest of red blood cell development in pernicious anemia.

Science News Letter, April 13, 1940

Monthly Weight Gain

A REGULAR gain in weight of about two pounds during one week in every month, with subsequent loss of this gained weight, occurs in about 50% of women as a result of monthly variation in sex hormone activity, Dr. George W. Thorn, Johns Hopkins School of Medicine, announced at the meeting of the American College of Physicians.

This weight gain, unexpected and perplexing, has caused much discouragement to women on reducing diets and even to the physicians prescribing the diets, Dr. Thorn pointed out. The two pounds gained is due in part to retention of excess quantities of water and salt, as a result of the regular change in sex hormone activity.

More important than the explanation of the discouraging weight gains of women on reducing diets is the explanation this finding gives of apparent increase in severity of kidney disease in women. Rapid appearance of dropsy in these patients may lead the physician and patient to think the kidney condition has grown worse unless the possible relationship between the appearance of the dropsy and the sex hormone cycle is appreciated. Women patients with liver disease complicated by dropsy may have a similar monthly increase and decrease in the dropsy.

Striking but temporary retention of salt and water in both male and female dogs following injection of large quantities of crystalline sex hormones added to the evidence for the role of the sex hormones in causing this regular monthly salt and water retention with weight increase in women.

The finding also has a bearing on treatment of women with Addison's disease, condition due to disease or failure of the adrenal glands. One of the female sex hormones, Dr. Thorn reported, can prolong the lives of animals that have no adrenal glands.

Science News Letter, April 13, 1940

Study Lessons of War

DETERMINED that if America should go to war again, her soldiers and sailors and flying men shall be protected from germ enemies at least, members of the American College of Physicians are concentrating on war-time medicine.

Military experts from the U. S. Army and Navy have been called in to tell these peace-time doctors how to fight the war diseases that generally kill more fighting men than bullets do.

Sulfanilamide and related chemicals which American doctors have been using to save pneumonia-threatened lives are expected to cut the toll from two of war's deadliest diseases — gas gangrene and meningitis. This last disease is worrying English doctors who report that it has already increased greatly since the beginning of the war. Mindful of the devastations of this disease during the last war, these doctors are "apprehensive of a considerable epidemic in the near future."

Meningitis among soldiers and sailors is essentially a disease of recruits. Crowded barracks and poor ventilation resulting from the black-out and bitter cold weather this winter are thought to have contributed to the alarming increase already noted in the number of cases in England. Providing adequate space in sleeping quarters, especially, helps to keep down the number of cases, doctors have learned, and sulfanilamide and sulfapyridine, given at the first sign of the disease, will save the lives of most of the victims. Deaths could be reduced to fewer than five per 100 cases by prompt use of these medicines, it is said.

Typhoid fever and other intestinal germ diseases such as dysentery, and even typhus fever were well controlled among American troops during the World War. U. S. Army and Navy medical officers are less worried about these diseases in future wars than they are about the respiratory diseases. The latter group includes colds, pneumonia and influenza. Sulfapyridine will help to save lives from pneumonia, and C.C.C. successful experience with an anti-pneumonia vaccine suggests that American soldiers may go into future wars vaccinated against this disease, although no definite announcement to that effect has yet been made.

Influenza, which ravaged troops and civilian population alike during the World War, has yet to be conquered. Practical methods of dealing with this disease so far as possible, and for handling the special medical problems of flyers and submarine crews were discussed.

Science News Letter, April 13, 1940

Sulfathiazole Best

SULFATHIAZOLE, new chemical remedy of the sulfanilamide group, is the "drug of choice" for treatment of pneumonia, Drs. Harrison F. Flippin and Leon Schwartz, University of Pennsylvania School of Medicine, reported after trial of sulfathiazole and sulfapyridine in treatment of 100 patients with each remedy.

In the sulfathiazole treated group there were 12 deaths, in the sulfapyridine treated group there were 15 deaths. Of the entire group, nine patients died within 24 hours after admission to the hospital and these deaths, the doctors stated, cannot therefore be fairly charged to failure of either of the chemical remedies.

Most significant difference between the two chemicals is the matter of toxicity. Nausea and vomiting, distressing feature of sulfapyridine treatment, are much less frequent and less severe when sulfathiazole is used for treating pneumonia patients, and sulfathiazole appears to be less toxic in other respects also.

Despite the value of chemical treatment of pneumonia, the Pennsylvania physicians still feel that serum should be used with the chemicals in certain cases.

Science News Letter, April 13, 1940

New Human Disease

A NEW disease which humans may get from animals, as they now may acquire undulant fever from infected animals, is probably on the way, Dr. L. A. Julianelle, Wash- *(Turn to page 236)*

AGRICULTURE—CHEMISTRY

All-American Cigarettes Marketed For First Time

Paper Which Has Been Made from Russian, Polish Rags Now Can Be Made from Flax Grown in United States

CIGARETTE smokers in America were made independent of European supplies of cigarette papers just in the nick of time—the first sheet of all-American cigarette paper came off the rolls on Sept. 3, 1939, the very day the European War started. The story of the new all-American wrappers for America's smokes was told at the Sixth Annual National Farm Chemurgic Conference by Harry H. Straus, president of the Ecusta Paper Company, Pisgah Forest, N. C.

Mr. Straus became convinced, in the course of his frequent trips to Europe, that another great war was inevitable. He knew that the huge American cigarette industry was absolutely dependent on paper made from linen rags, which came from Russia, Poland and the Baltic countries. He was sure that the coming war would seriously curtail this supply, and might cut it off altogether.

Flax has been grown in the United States since Colonial days, but lately only seed flax, for oil, has been cultivated. Cultivation of straw flax had about died out. Mr. Straus set out to revive the old flax industry, especially for the direct production of high-grade cigarette paper.

Large plantings in the Imperial Valley of California yielded good material. However, the center of flax production was and remains Minnesota. For the needs of the new mill, California can supply 2,500 tons a year, Minnesota 7,000 tons; which just meets minimum requirements. This production will keep between 75,000 and 100,000 acres of land under cultivation.

Science News Letter, April 13, 1940

Soybeans for Human Food

PASS your plate for a big helping of tasty soybeans. The pigs and the chickens have already been served; now is the family's turn.

Soybeans for human food, however, won't be the same kind now produced for stock feeding and industrial processing, Prof. W. L. Burlison of the University of Illinois told the Farm Chemurgic Conference. A number of varieties specially adapted for human consumption have been brought in from the Orient by the U. S. Department of Agriculture, and six of them have been selected and bred as having especial promise. Next big expansion in soybean use may be expected to come across the dinner table, via these new varieties.

Canned soybeans have already been marketed in an experimental way. The new varieties, however, give promise of being acceptable as green vegetables, for shelling like the already well known Lima beans. Research aiming at better results in canning is also under way. Soybeans, whether green or canned, bring the appeal of a new series of flavors in vegetables. They also offer an entirely different type of dietary possibilities, because in them a high oil content replaces the starch that predominates in all other kinds of beans.

Science News Letter, April 13, 1940

ON PEACEFUL BORDER

Rivalled in power and speed only by war machines, is this tractor plowing through thick gumbo on the International Boundary Levee along the Rio Grande.

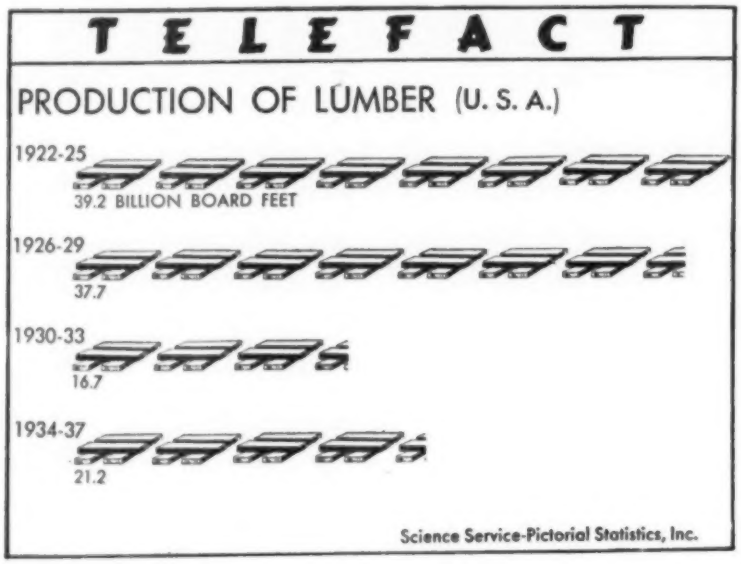
Seek Industrial Corn Use

RESEARCH to find industrial uses for corn will have to go clear down to details of molecular structure of the starch, proteins and other constituents of the corn grain, Dr. Henry G. Knight, U. S. Department of Agriculture, told the Chemurgic Conference. Dr. Knight outlined to his audience some of the lines of attack contemplated in the research program for the Northern Regional Laboratory, now building at Peoria, Ill.

Corn, the country's biggest single crop, has an apparently inevitable flow toward food, Dr. Knight's figures indicated. Only 9% of the crop leaves the farm for the hoppers of industrial plants. Of this, about a fourth goes right back to the farm as feed for animals, and another half becomes human food in one form or another. In other words, the actual percentage of the total corn crop that enters non-food uses is very small.

Starch, which makes up the bulk of the corn grain, also makes up the bulk of corn's present industrial output. By far the greater part is used as starch or after conversion into compounds of smaller molecular size, the most familiar of which are glucose and alcohol. Practically nothing has been done in the direction of building the molecules up into bigger ones, as molecules of starch's kin-compound, cellulose, have been built up into synthetic plastics.

Science News Letter, April 13, 1940



PUBLIC HEALTH—ECONOMICS

North China Faces Century's Worst Famine

NORTH CHINA, under Japanese domination, is reported threatened this spring by one of the worst famines of this century. Ironically the world's wheat bins are overflowing with more than a billion bushels of surplus grain.

Little hope of transferring appreciable quantities of surplus wheat to the stricken region is seen by government and relief offices in the United States. The United States' carry-over of wheat amounts to about 600 million bushels, which is twice the amount we consume in a year. But selling wheat to Chinese in this area is scarcely practicable, with Japan in control, peasant poverty at a serious level, and prices inflated.

Extension of $20,000,000 credit to China, made possible by act of Congress, will not help the North China provinces, whose people number almost as many as the population of the United States. The United States loan would be destined for trade purposes with the part of China under Chinese republic control.

Surplus American wheat is not available for relief abroad now, as it was a year ago, the American Red Cross states. Wheat now would cost about 94 cents a bushel, and the Red Cross is finding it more satisfactory to send Chinese relief mainly in the form of money, for relief committees in China to expend.

In North China itself, the winter wheat crop in Shantung province in 1939 was less than half the prewar crop, says a report on the famine from Norman D. Hanwell in Peiping to the American Council of the Institute of Pacific Relations. Last year the war, drought, insect pests, and floods reduced large numbers of people in North China to eating bark of trees and compounds of the earth, he states. Unable to do flood prevention work in warlike conditions, the people of Hopei and Honan provinces found crops inundated by unusually destructive flood waters. Shanghai province suffered worse from drought. Only one major crop in Shantung showed a rise—the sweet potato.

Japan, with the best wheat crop of her history, expected to assist North China, but her own rice shortage and domestic trade problems drove Japan to restrict imports of flour to North China.

Now, says Mr. Hanwell's report, to which Kurt Bloch of New York has supplemented material, "with the gap between the present and the harvest of June, 1940, apparently hopelessly wide and deep," the food situation in China is most serious, and the background one of "internal disruption, starvation, and near-anarchy."

Science News Letter, April 13, 1940

Methane gas from the Piacenza lowlands is being used as a gasoline substitute in Italy.

ETHNOLOGY

Gold Rush Indians Now Dying Out in Poverty

CALIFORNIA's Hok Indians, whose fathers lived in the midst of the Gold Rush and rubbed elbows with the land baron John A. Sutter, are dying out in poverty.

Hunted out by Dr. John P. Harrington of the Smithsonian Institution, these Indians now number about 100, and are widely scattered. Dr. Harrington, just returned from their region, managed to find an 80-year-old woman and a few other elderly Indians who could recall some words of the Hok tribe's distinctive dialect.

Excavating a mound which the Indians had occupied before Sutter drove them off and put up a boiler plate wall on top, Dr. Harrington unearthed many aboriginal relics. The Hoks apparently remained fairly friendly neighbors of Sutter's, Dr. Harrington explains. Forty Hawaiians whom Sutter brought in to work his farm, intermarried with the Hoks and to this day tribal survivors show racial evidence of the mixture.

Science News Letter, April 13, 1940

HORTICULTURE

Miniature Hothouses Make Spring Vegetables Grow

A TRANSPARENT "hotcap" for the protection of tender young vegetable plants in northern latitudes has been developed by Prof. Albert E. Wilkinson, extension specialist in vegetable and landscape gardening at the University of Connecticut. He tried them experimentally in his own garden last year and now is urging their use by commercial and home gardeners.

The miniature hothouses are made from cellulose acetate sheeting which can be purchased commercially. It is also the material from which the base of amateur moving picture film is made.

A triangular piece of the material is fashioned into a simple cone. The apex of the cone is snipped off to provide ventilation. A piece of wire bent into a hook is then thrust into the ground through this aperture and holds the cone in place. The hotcaps can be made at home with no tools but shears, wire, wire cutters and paper clips to hold the edges of the material together in the cone shape. The edges can be cemented together with liquid cellulose acetate.

Science News Letter, April 13, 1940

CHEMISTRY

You May Soon Eat Grass; Rich in Vitamin Content

Maybe There Was Method in Nebuchadnezzar's Madness; Kentucky Blue Grass Best Among Varieties Tested

YOU MAY soon be eating grass! Scientists have just discovered how to put the rich vitamin content of grass into palatable foods for man.

This new achievement, which makes the diet of old King Nebuchadnezzar seem not so crazy after all, was reported to the American Chemical Society, in Cincinnati.

Scientists W. R. Graham, G. O. Kohler, and C. F. Schnabel of the American Butter Company, Kansas City, Mo., who performed the experiments, said their work was "the first successful scientific effort to transmit the unique properties of grass directly into human nutrition."

The vitamin content of grass leaves, say the scientists, is vastly greater than the vitamin content of the four standard classes into which fruits and vegetables are divided. Grass leaves, known as cerophyl, on an equal weight basis contain 280,000 international units of vitamin A whereas potatoes and sweet potatoes contain only 1,000 units. By the same rating tomatoes and citrus fruits contain only 2,000 units, leafy, green and yellow vegetables 12,000 units. Other fruits and vegetables contain 1,290 units on the same scale.

In crucial vitamin B_1 content, grasses contain 1,300 international units, about ten times the amount obtainable from any other vegetables and fruits.

"These new grass products," the report continued, "recommended themselves as food constituents not only because of their wealth in supplying the better known vitamins but because animal assays have shown vitamin A, B, C, E, G, K, nicotinic acid, grass juice factor, B_4, B_6, R, U, and Factor W to be present in significant quantities. Recent experiments have shown that the processed product contains sufficient of all the vitamins both known or unknown to support the normal rapid growth of laboratory animals when fed only cerophyl and water."

In America an extract of grass juice has been tried out experimentally to enrich cattle feed during the winter months when the stock cannot obtain fresh grass.

In South Africa, Dr. F. W. Fox of the South African Institute for Medical Research reported in 1937 that experiments were being made with alfalfa as a vitamin-rich food for the native miners. He reported that the tender young shoots of alfalfa could be eaten raw or cooked like spinach. He found that the alfalfa diet was rich in elements that helped to prevent scurvy among the miners.

In the latest research, now reported by the Kansas City chemists, it is essential that the grass be dried artificially to prevent the destruction of the often-unstable vitamins.

Of all grasses the richest in vitamin A is the one you probably have walked on many times in your own yard: Kentucky blue grass.

Science News Letter, April 13, 1940

BIOLOGY

Viruses Thought to Hold Secret of Life's Origin

VIRUSES, best known as causing diseases like infantile paralysis and influenza, may some day reveal the secret of the origin of life. Discovery of the exact transition point between living and non-living, however, even if it can be made through virus studies, will be difficult, Dr. Thomas M. Rivers, director of the Hospital of the Rockefeller Institute for Medical Research and noted authority on viruses, declared at a meeting at the New York Academy of Medicine.

When bacteria, slightly larger disease-causers, were discovered, Dr. Rivers pointed out, scientists thought these tiny organisms were the key to the origin of life in the world in general. Now some scientists believe this is the case for viruses.

"At present there are a number of ideas regarding the nature of viruses," Dr. Rivers said. "According to one, viruses represent the results of retrograde evolution that might have proceeded to the point of a single living molecule; to another, they are examples of how life begins; to still another, they are autocatalytic agents, that is agents, presumably without life, which in some unknown manner, are capable of inciting the production of more of themselves through the building up, breaking down, or rearrangement of materials or molecules in their host cells; and finally, they are transitional forms between the living and the non-living.

"There is one objection to all of these ideas, namely, each stresses the point that all viruses must be similar in nature. However, to me it appears not unlikely that if the concepts set forth by the different workers are within the realm of possibility more than one of them may hold within the virus group and that viruses are not necessarily all alike in nature.

"In other words, I am of the opinion that some of the viruses may be minute, highly parasitic microorganisms, the midgets of the microbial world, capable of reproduction only within susceptible host cells; that others may represent forms of life more or less unfamiliar to us; and that still others may be fabrications of their host cells aided by the processes of autocatalysis.

"What life is and where the transition from the non-living to the living takes place, if it does, in the scheme just set forth is not known. Indeed, the transition may be so gradual that it will be difficult for investigators to determine the particular point at which it occurs."

Science News Letter, April 13, 1940

● Earth Trembles

Information collected by Science Service from seismological observatories resulted in the location by *U. S. Coast and Geodetic Survey* of the following preliminary epicenter:

Wednesday, March 27, 7:31 a.m., EST

Under the sea off the western end of the Aleutian Island Chain. Latitude, 52 degrees north. Longitude, 176 degrees east.

For stations cooperating with Science Service, the Coast and Geodetic Survey, and the Jesuit Seismological Association in reporting earthquakes recorded on their seismographs, see SNL, Feb. 24.

CHEMISTRY

New Bleaching Agent Important in Paper Making

BACKGROUND to what may be important progress in paper making, now that high-grade paper is made from pine pulp in the South: a new bleaching agent — sodium chlorite — recently developed in the Mathieson Alkali Works laboratories acts without harmful effect on the cellulose fibers. Heretofore loss of strength has been the penalty for bleaching. The new bleaching agent also promises to give stronger cotton and rayon fabrics in the lighter colors.

Science News Letter, April 13, 1940

INVENTIONS

Bomb Sight Is Patented But is Believed Outmoded

A BOMB sight for airplanes was among the 670 patents issued by the U. S. Patent Office recently but the device, now made public, is believed to be outmoded by present U. S. Army Air Corps bomb sights.

The bomb sight is described in patent No. 2,194,141 granted to Georges L. Estoppey of Dayton, Ohio. Army records show that Estoppy was employed at McCook Field at Dayton up to 1926, working on bomb sights and their tests in planes.

Queries at the Air Corps about the Estoppey bomb sight were answered with "no comment."

Among other patents of the week were:

A way to impregnate fibers and fabrics with a protein coating obtained from soybeans won patent 2,193,818 for three Tokyo inventors, Toshiji Kajita, Ryohei Inoue and Akira Yamanouchi. Two of these men recently were awarded another patent for the production of wool-like fiber from soybeans, so that it is believed the newest patent enables a fiber like rayon to be given a wool-like coating to increase its warmth.

An optical frame in which currency bills may be quickly inserted and studied by magnification to detect counterfeits won patent No. 2,194,227 for E. W. Horan of Norwalk, Conn.

A new way of packing coffee in individual portions by means of an elongated continuous tubular sheet of strip rubber material, which is sealed at intervals, won patent No. 2,194,451 for L. D. Soubier of Toledo, Ohio. Tearing off sealed sections provides the individual portions. The patent is assigned to the Owens-Illinois Glass Company.

For a remote control method for operating radio transmitters two British inventors, H. J. H. Wassell and F. H. Cannon of Chelmsford, England, were awarded patent No. 2,194,174 which is assigned to the Radio Corporation of America.

For the invention of a new type of submarine ocean telegraph cable Hakon H. Haglund, New York City, was awarded patent No. 2,193,902, assigned to the Western Electric Company.

A means of heating walls electrically, invented by W. A. Barnes of Mansfield, Ohio, was awarded patent No. 2,194,193.

For his invention of a magnetic bowling alley, in which the tenpins are accurately positioned by magnetism, J. R. Kaiserman of Helena, Mont., was awarded patent No. 2,194,146.

Patents may be secured for 10 cents each by writing to the U. S. Commissioner of Patents, Washington, D. C.

Science News Letter, April 13, 1940

ENGINEERING

Auto Accessories Dried With Infra-Red Lamps

See Front Cover

HUGE banks of infra-red heat ray lamps are used to dry quickly the lacquer on automobile accessories which pass, in a continuous stream, down the center line between the lamps. The Nela Park laboratory of the General Electric Company developed the lamps shown on the front cover of this week's SCIENCE NEWS LETTER.

Science News Letter, April 13, 1940

PSYCHOLOGY

New World Customs Add to Difficulties of Refugees

THE GERMAN refugee, brought up in an authoritarian social world where the husband is the supporter and dominating head of the family finds it difficult to get along in the United States, especially if the wife is first to find employment, Dr. Gerhart H. Saenger, New York psychologist, told the meeting of the Eastern Psychological Association.

New attitudes encountered in America toward change in employment and toward the prestige of certain occupations are hard for the German to adopt, and an already shaken self-respect adds to this difficulty.

Science News Letter, April 13, 1940

IN SCIEN

GENERAL SCIENCE

Intellectual Blackout Worst Blight of War

THE INTELLECTUAL blackout in Europe—"perhaps the most frightening aspect of modern war"—has made inroads on the Europe that used to be, Dr. Raymond B. Fosdick, president of the Rockefeller Foundation, makes clear in his annual report. Certainly the night in Europe, he says, cannot be long continued without the sacrifice of cultural values on so vast a scale that the chance of an enlightened and gracious life, not alone for this generation in Europe, but for the children and grandchildren of this generation, will be irretrievably lost.

Fragments of the intellectual disaster: The University of Warsaw has ceased to exist. According to reliable reports, the entire Polish faculty of the University of Cracow is in a concentration camp. The Polish members of the faculty of the University of Vilna have been dismissed. Scarcely a year ago, the Moors, entrenched in the ruined University of Madrid, used the books from the University library as defenses in their rifle pits. The University of Prague has been shut by the German government. The University of Strasbourg has been torn from its site and planted in Clermont-Ferrand. For reasons of economy and because their students are in military service, more than half the universities of Germany are closed. The institutions comprising the University of London have been uprooted and scattered over a wide area in southern England. The 20,000 student population of the University of Paris has shrunk to 5,000.

Science News Letter, April 13, 1940

ZOOLOGY

First Census Taken Of Desert Bighorn Sheep

FIRST census report—not of the U. S. human population—but of Desert bighorn sheep in Death Valley National Monument, Calif.: Tentatively 500 bighorns are in the national monument, the greatest number known to be alive in any one area.

Science News Letter, April 13, 1940

...NCE FIELDS

MEDICINE

Vitamin A Mobilized When Dogs Get Cocktail

A COUPLE of strong cocktails help to make vitamin A available to the tissues of the body, it appears from research reported by Drs. Samuel W. Clausen, William S. Baum, Augusta B. McCoord, John O. Rydeen and Burtis B. Breese, University of Rochester School of Medicine and Dentistry. (*Science*, March 29)

The investigations were made on dogs, who got their cocktails—about two ounces of alcohol in a 20% water solution—by stomach tube. The amount of vitamin A in the blood serum of the dogs promptly increased, the maximum concentration being reached seven hours later for one dog and 24 hours later for the other.

These and other experiments showed the Rochester investigators that alcohol is the best of many substances so far tried for mobilizing vitamin A from its storage place in the body tissues to the blood for distribution throughout the body. This vitamin is believed to be stored in the liver. The Rochester scientists think their findings will lead to development of methods for study of vitamin A reserves in the body and also of liver function.

Science News Letter, April 13, 1940

VOLCANOLOGY

Moon, Sun Help Release Pent-Up Volcanic Energy

NEW evidence of the moon's intervention in earthly affairs is presented by Dr. Frank Perret, research associate of the Carnegie Institution of Washington, as part of a new publication of the Institution, *The Volcano-Seismic Crisis at Montserrat, 1933-1937.*

Studied intensively for four years by Dr. Perret, this small volcanic island in the British West Indies showed a high degree of correlation between the occurrence of local earthquakes and gas eruptions and the positions of moon and sun.

Earthquakes came most frequently, and abnormal gas eruptions were most likely to occur, near the times when sun and moon were in opposition (on opposite sides of the earth) or in conjunction (in line on the same side of the earth).

Dr. Perret does not believe that these are direct effects of the gravitational pull of sun and moon on the earth, setting up tidal strains in the solid rocks of its crust, but that these strains, added to strains already accumulated through volcanic forces at work below, finally play "last straw" roles and release the pent-up geophysical energies.

Science News Letter, April 13, 1940

PUBLIC HEALTH

Five Hungarian Villages Test New American Vaccine

ONE of the most dramatic tests ever conducted in man's fight against disease is taking place in five Hungarian villages, close to the Polish border. The story is brought back to America by Dr. Adolph Eichhorn of the U. S. Bureau of Animal Industry, just returned from his mission of arranging trial of American typhus fever vaccines in Hungary and Rumania. A terrific toll during the World War was taken by typhus fever, conveyed by fleas from rats to men.

This spring the disease has reappeared near the Polish-Hungarian passes in the sub-Carpathian region.

Two typhus fever vaccines have been developed recently, one by Dr. Hans Zinsser of Harvard and used by Lederle Laboratories, another by Dr. Herald R. Cox, at the U. S. Public Health Service Laboratories in Montana, who raised the virus on fertile eggs.

From Budapest came requests for immediate trials of the new vaccine and Dr. Eichhorn, formerly a Lederle Laboratories department head, made the trip carrying 5,000 doses of each type of vaccine.

Hungarian health officials had everything in readiness. The entire populations of five villages were compulsorily vaccinated. One person got the U. S. Government vaccine. The next got the Lederle vaccine. The next got typhoid vaccine, this last third of the population serving as controls. Actually protection against typhoid had nothing to do with the test of the typhus vaccine. Everyone was vaccinated with something in order that there would be no apparent favoritism noticeable by the population. Now health officials are anxiously waiting, hoping that none of the vaccinated people will contract the disease in the weeks to come.

Science News Letter, April 13, 1940

MEDICINE

New Attack on Cancer Hinted in Serum Research

HINT of a new attack on cancer is contained in research on an anti-tumor serum reported by Drs. Charles A. Stoneburg and Frances L. Haven from the University of Rochester's department of biochemistry and pharmacology. It is a direct attack on the nucleus or central portion of the tumor cell. Here's how it is done: Nuclei from the rat tumor cells were isolated, then injected into rabbits over a period of a year.

Then the rabbit serum was taken and injected into rats, inoculated with the same species of tumor from which the nuclei were derived. The results were promising. The average tumor size in the rats treated with immune serum was less than that in the control rats. This means that tumors in the rats injected with the immunizing rabbit serum were inhibited.

It may mean that a new line of therapy has been opened for experimentation. Although not predicted by the experimenters, the future may see: First, additional animal experimentation; eventually, perhaps trials upon human beings. If eventually successful, the article in the *American Journal of Cancer* (March) may well be considered an historic one.

Science News Letter, April 13, 1940

PSYCHOLOGY

Rats Are Not Gamblers; Take no Chances on Food

RATS do not like to gamble, it was discovered when Leo P. Crespi, of the department of psychology at Princeton, tried to trace this human trait in lower animals.

When 21 rats of both sexes were given their choice of a reward which always contained three pieces of hamburger and of another which sometimes contained six pieces, only one at other times, only one animal consistently chose the gambler's goal, Mr. Crespi told the meeting of the Eastern Psychological Association.

At first it was believed that a lone consistent gambler had been found among the four-legged rats. But no, when the gambler's goal was changed to the other side of the box, the "gambler" continued to run to the same side. He was not a gambler after all. There was not one clear-cut case of consistent gambling in the entire group of rats.

Science News Letter, April 13, 1940

HORTICULTURE

Science Stunts for the Gardener

Experiments Formerly Conducted Only in Laboratory Now Provide Bigger and Better Flowers and Vegetables

By DR. FRANK THONE

GARDENING, this spring, can be made a very exciting activity. For along with the regular, down-on-your-knees, dirt - under - the - fingernails grubbing that has made up the bulk of gardening from Adam's day to ours, it is now possible for the ordinary, everyday, garden variety of gardener to do some of the fascinating tricks with plants that have hitherto been the monopoly of scientists only.

This has come as a direct response to popular demand. During the last few years, a number of new discoveries about the growing and handling of plants have been announced, of evident practical usefulness as well as scientific importance.

People immediately began demanding, "Where can I get it?" "How can I learn how to do it?" Until at last in sheer self-defense the scientists have had to produce popular books explaining how, and the chemical companies have begun putting up the necessary materials in small, ready-to-use packets, and have inserted advertisements in all the gardening and country-life magazines.

Of all the new techniques, perhaps the one that has aroused most general interest is the trick of growing plants without soil. It has come to be known by several names: soilless gardening, dirtless farming, solution culture, hydroponics.

The latter term is the invention of Dr. W. F. Gericke of Berkeley, Calif., who has pioneered the field of putting this method on a large-scale, commercial basis. He uses big, shallow tanks or basins, over which the plants are held in a few inches of excelsior, sawdust or other non-soil material on wire netting, while their roots dangle in the water beneath, receiving the necessary mineral salts in solution. Sometimes electric heating cables laid on the bottom of the basin provide added warmth to speed the plants' growth rate.

Hydroponics can be applied on small as well as large scale, with anything from a single plant growing with its roots imersed in a quart jar of culture solution up to tubs or big crocks with small gardens suspended above them, sunk to the rim in lawn or shrubbery.

Less radical in appearance, though essentially the same in principle, is the method of growing plants in sterile sand or crushed gravel, with the nutrient chemical solution kept slowly and constantly trickling through. This technique was first worked out by Dr. J. W. Shive of Rutgers University. Like Dr. Gericke's hydroponics, it has been applied to large-scale operations by commercial greenhousemen, but is also adaptable to small-scale, home use.

Several firms are offering both equipment and prepared chemicals for home gravel-culture set-ups, and many of them are quite attractive in appearance as well as mechanically practical. The culture solution is trickled out of a reservoir through a slender siphon or led through a thick wick of woven glass fibers, that will not clog or decay.

There is nothing secret about the tablets or stock solutions of prepared chemicals that are sold for use with either the hydroponic or the gravel-culture method. Their formulae have been used in laboratories for several generations; their ready-mixed form (at of course a usually higher price) is simply a matter of con-

Interested?

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FOR SLIPS

Abundant root growth produced on cuttings of holly by treatment with indole butyric acid solution at Boyce Thompson Institution for Plant Research. Untreated holly cuttings (at left) simply refuse to grow any roots for the plant ordinarily is one of the most difficult to grow by cuttings.

FLOWERS THRIVE

One of Dr. Gericke's hydroponic basins producing a crop of gorgeous roses. Recently the California scientist has developed a multiple cropping system, growing two or more kinds of flowers or vegetables in the same basin.

venience for the home gardener, who does not have the delicate chemical balances necessary for weighing out exact quantities to fit the published formulae.

Of at least equal interest to the practical home gardener is the use of growth-promoting substances, or synthetic plant hormones, to induce the formation of roots on slips or cuttings that ordinarily produce very scanty roots or none at all. Plants form these hormones themselves, but scientists have discovered that certain complex organic compounds, like indole acetic acid and indole butyric acid, will do the work perfectly well; and these acids of course can be produced synthetically.

They are quite expensive, so that it is just as well that a very little of them goes a long way. Dilutions of a few parts of acid per hundred thousand parts of water will start roots on stubborn cuttings that have been dipped in them.

No Hormone For Branches

Unfortunately, no corresponding substances have yet been found that will induce the formation of branches, although much research effort has been spent in that direction. However, the growth substances already known have been successfully used in several other interesting ways: production of seedless tomatoes, melons, etc., from unpollinated flowers, spraying to prevent premature wholesale dropping of young apples, and so on.

Tremendous interest, and a good deal of controversy, has been stirred up by the discovery that one of the "human" vitamins, thiamin chloride or vitamin B_1, is necessary for the growth of roots. Good results following the use of this vitamin in certain types of sterile soils have been followed by its wholesale application in all kinds of gardening situations, with the result that amateur and professional gardeners alike have been divided into excited, name-calling partizan camps.

Probably the safest advice is: If you are interested, try B_1 for yourself under what scientists call "control" conditions. That is, use it according to directions on one set of plants. Grow a similar set of plants under exactly the same conditions of soil, water, sunshine, etc., but give them no B_1. Judge by your own results whether the vitamin is what is needed under your particular working conditions.

Make New Varieties

It is even possible for the ordinary gardener to enjoy the thrill of creation, by producing a new, and possibly giant, flower or vegetable variety. Formerly this could be done only through the exceedingly tedious process of hand-pollinations and subsequent growing of the hybrid seed—if any seed set.

Now, it is possible to treat growing parts of stems with a solution of colchicine, an ancient gout cure diverted to a newer and more exciting use. Colchicine is a poison. It causes abnormal patches of tissue to form in the stem. Some of these may subsequently produce branches, and the branches will have flowers unlike those of the parent plant. Their seeds, also, will carry the new characters, and often grow into plants much bigger than the parent, and sometimes of strange and striking form.

For further information on newest

●RADIO

Prof. Dayton C. Miller of the Case School of Applied Science will discuss "The Pipes of Pan, Old and New," as guest scientist on "Adventures in Science" with Watson Davis, director of Science Service, over the coast to coast network of the Columbia Broadcasting System, Thursday, April 18, 4:15 p.m., EST, 3:15 CST, 2:15 MST, 1:15 PST.

Listen in on your local station. Listen in each Thursday.

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By Ellis & Swaney

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Let Ellis and Swaney show you how to speed up the germination of seeds and greatly increase the yield of seedlings through soilless growth. The method explained in this book uses sand instead of soil and results in bigger crops and stronger, larger-sized plants.

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Whether interested in raising fancy fruits and vegetables for your table or for sale, whether you want to experiment with the commercial possibilities of soilless growth or just for the fun of it, send for a copy of the book that shows you how to get started. YOUR MONEY BACK if not 100% satisfied.

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MODERN

In this home gravel-culture setup, nutrient solution is fed from reservoir at left into the flowerpot; excess slowly drips into bowl beneath.

things in scientific gardening, send a three-cent stamp to SCIENCE NEWS LETTER, *2101 Constitution Ave., Washington, D. C. Ask for the Gardening Bulletin.*

Science News Letter, April 13, 1940

From Page 228

ington University, St. Louis, warned.

Dr. Julianelle calls the new disease Listerellosis because it is caused by a bacterial species named Listerella.

More and more patients with a peculiarly fatal form of meningitis due to these germs are being seen, Dr. Julianelle said. Common and severe animal diseases due to these germs have been generally recognized since 1926. Dr. Julianelle believes the animals may serve as reservoir for the infection which is right now in process of becoming a human plague. The germs fall into two classes, one characteristic of rodents and the other characteristic of ruminant animals such as cows. Both kinds of germs have been found in human patients.

Medical preparedness against this future plague is called for, Dr. Julianelle stated.

Science News Letter, April 13, 1940

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Hope for Thrombosis

GREATEST hope for victims of the heart disease, coronary thrombosis, lies in development of new drugs to dilate the tiny arteries of the heart, Dr. Fred M. Smith of Iowa City declared at the meeting of the American College of Physicians.

One such drug is aminophyllin, which can be injected directly into the patient's vein. Others are theobromine and theophyllin and Dr. Smith said that medical researchers are now trying to develop still more effective medicines of this type.

The outlook for patients with coronary thrombosis has improved remarkably within the past 10 or 15 years, he said. This is partly due to better methods of treatment and partly to the fact that the condition is being recognized more often and treated earlier.

In this form of heart disease, the larger blood vessels supplying the heart itself with blood may become blocked. The very small arteries in the same region then try to take over the job of carrying blood to the heart. If these little arteries called arterioles, succeed, the patient has a good chance of living out his normal life span. The new medicines Dr. Smith described are helpful because they dilate these small arteries and thus enable them to carry more blood to the heart.

Drugs are only one aspect of treatment of this form of heart disease, Dr. Smith emphasized. General care is also tremendously important.

Science News Letter, April 13, 1940

Better Chemical Treatment

THE CHEMICAL curing of disease, widely practised since the discovery of sulfanilamide, can develop along rational and presumably more effective lines as a result of discovery of the most powerful known germ-killing chemicals, substances produced by bacteria that live in the soil, Dr. René J. Dubos, of the Hospital of the Rockefeller Institute for Medical Research, predicted at the meeting of the American College of Physicians, Cleveland.

For his discovery of potent germ-killers produced by soil bacteria, Dr. Dubos received at this meeting the John Phillips Memorial Award of the College.

The new germ-killing chemicals can protect mice against pneumonia and against streptococcus infection, but it may be many years before they are ready for use in treating human patients.

In the test tube, the soil bacteria chemicals can kill pneumonia germs, streptococci, staphylococci, diphtheria bacilli and numerous other dangerous germs. One of the chemicals, gramacidin, is so powerful that less than one grain of it (0.002 milligrams) can protect a mouse against 10,000 fatal doses of pneumonia germs or streptococci.

While the soil bacteria chemicals are very potent killers of one class of germs, called Gram positive, they are less effective against the Gram negative class of germs to which belong the gonococci and meningococci. When the differences between these two classes of germs which make them respond differently to Gram's stain and to the new chemicals are understood, scientists may have important knowledge for dealing with the general problem of antisepsis, Dr. Dubos said. Meanwhile, he indicated, chemical studies now in progress of the structure of the new germ-killers from soil bacteria may "suggest new lines of investigation for the development of chemotherapy on a rational basis."

Science News Letter, April 13, 1940

To help passengers find their way aboard trains these black-out nights, Germany is trying the *electric eye* device, which automatically turns on lights at the platform edge when a train pulls in.

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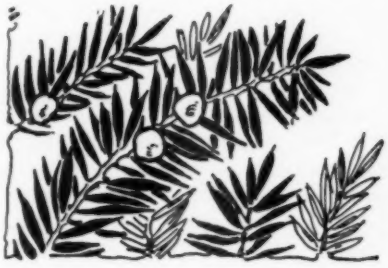
CONSERVATION

NATURE RAMBLINGS

by Frank Thone



Storm-Spared

WAR, that shoves whole masses of human beings around the map like poker chips across a gaming table, or does them to death in a thousand cruel ways, has ironically spared a choice grove of very ancient yew trees, in the debated zone that once was Prussian, then was Polish, now is Prussian again. A Swiss observer, recently returned to his country after a trip into the area of newest conquest, tells of his visit to these yews.

The trees stand in a compact mass of about 50 acres, near Lake Mukrz, in the Lindenbusch state forest, in the formerly Polish province of Posen. There are all told some 5,500 trees, the largest about six feet in circumference. Since yews are usually small trees, this size is relatively gigantic. Sample ring counts indicate that the trees may be as much as a thousand years old—probably the oldest yews in the world.

The grove was made a special preserve as early as 1918, when it was still in Prussian possession. When the Polish republic was set up, it became Polish territory. Now conquest has made it German again. But through both changes of ownership the same meticulous care has been taken of the trees. As a matter of fact, at last reports, the Polish forester was still in charge, and the grove was still being called by its Polish name, Reservat Cisy. ("Cisy" is Polish for yew.)

How this grove managed to escape the hatchets of medieval bowyers, in the days when yews were munitions plants in the most literal sense of the term, is something of a mystery. It has been suggested, however, that it was once an inaccessible island in a larger Lake Mukrz, which has receded in recent centuries.

Science News Letter, April 13, 1940

He Set a Trap for Lightning

STALKING thunderstorms is nothing unusual for Karl McEachron. He's done it for years—photographing lightning bolts, traveling miles to study struck trees and buildings, enticing lightning to strike his equipment so that it will write a record of its voltage and power. He even has in his laboratory a machine to imitate it—a 10-million-volt lightning generator like the one seen in action last year by two and a half million visitors to the G-E building at the New York World's Fair.

Dr. McEachron's work has won him world recognition as an authority on lightning. And at Pittsfield, Massachusetts, in the G-E High Voltage Laboratory, he and his associates are learning how to outwit this "outlaw" of nature—how to keep it from interfering with your electric service. That's one reason why a passing thunderstorm isn't the signal for a "black-out" in your home, as it used to be. Your lights may blink, but they seldom stay out.

Karl McEachron is one of the hundreds of men in General Electric who are devoting their lives to making electricity more useful to you—are helping industry to improve its products and services, to sell them for less, and so make them available to more millions of people. These men are helping to raise the living standards of everyone by creating "More Goods for More People at Less Cost."

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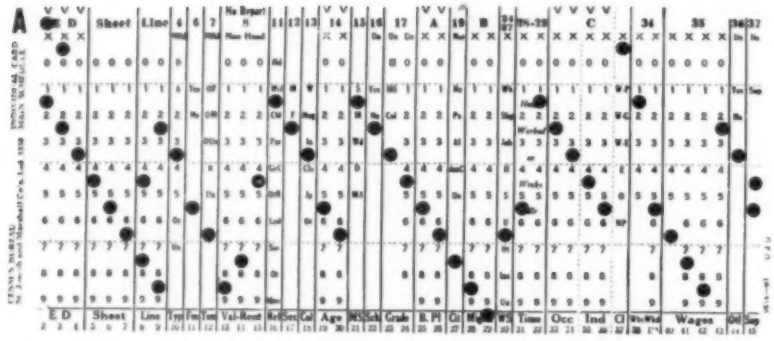

YOU ARE JUST A STATISTIC

This is how you will look as a statistic when your census record comes to Washington. No longer identified by name, you become a numbered card; and the information you give to the census taker is transferred straight from his big schedule sheet to the card as a code consisting of punched holes. When run through electric tabulating machines, the punches can be counted with uncanny speed and unerring accuracy for compiling census reports on the state of the nation.

PSYCHOLOGY

Ink Blots Serve as Clue For Predicting Success of Insulin

Things That Patients See in Fantastic Outlines Give Doctors an Idea of Degree of Mental Ill

INK BLOTS promise to prevent many of those grim disappointments which follow the failure of a mental patient to respond to the new insulin shock treatment on which so many hopes are pinned.

A method for sorting out in advance those who can be healed by the shocking, expensive treatment from those who can not was reported by Dr. Zygmunt Piotrowski, Columbia University psychologist, to the meeting of the Eastern Psychological Association in Atlantic City.

The insulin treatment has brought about dramatic restoration of those afflicted with the living death of schizophrenia or dementia praecox, one of the most frequent of all the mental diseases. But insulin can not cure everyone.

The clues used by Dr. Piotrowski are ink blots. They look like ordinary ink blots such as you might make by dropping blobs of colored ink on paper and then creasing the paper so as to spread the ink in fanciful patterns.

Sixty schizophrenics at the New York Psychiatric Institute and Hospital were asked to look at these Rorschach ink blots and tell what they saw, just as you might vision pictures in clouds or curling smoke.

From their answers and with no other knowledge of the patients or their symptoms or history, Dr. Piotrowski made his predictions of the outcome of the insulin treatment.

These "blind" predictions were hits in 53 out of the 60 cases—a record accuracy of 88%. This is the highest accuracy that has ever been obtained in predicting the outcome of the new insulin therapy.

The ink blot is no crystal ball in which to see reflected the future of the patient. Dr. Piotrowski is able to make his predictions by comparing the responses of his patients with those of other persons. Answers similar to those suffering from a badly deteriorated brain indicate a very bad outlook for recovery after the treatment. Answers indicating that the patient is not making full use of what intellectual powers he has are hopeful. Those already doing their best are unlikely to improve. Those who are intellectually unimpaired but who are in a depressed state are likely to improve markedly.

The experiment was conducted under the guidance of Dr. Nolan D. C. Lewis, director of the Psychiatric Institute.

Science News Letter, April 13, 1940

Census Will Have Errors

AS THE Census Man rings America's doorbell during these current weeks, he will collect a certain number of lies along with his facts. These will be due to the attitudes of the men and women questioned, Dr. J. B. Maller, of New York University, told the Eastern Psychological Association, and some of them will have nothing to do with the recent discussion over income questions.

Men and women hate to be 40 years old. This Dr. Maller discovered from a study of several reports of the U. S. Census. They also seem to object to being 30 and 50. The number of persons giving their ages at 29, 39, and 49 are consistently and significantly larger than those admitting to 30, 40 and 50. Even fewer will admit to 31, 41, or 51.

Older people, on the contrary, prefer the round numbers. More people give their ages as 70, 80 and 100 than claim 69, 79 or 99.

Recent legislation concerning child labor and social security will affect the accuracy of age records, Dr. Maller said. But it is important, he indicated, to consider the attitudes of the persons questioned when evaluating the answers.

Science News Letter, April 13, 1940

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Additional Reviews On Page 240

ENTOMOLOGY

THE SPIDER BOOK (Rev. and Enl.)—John Henry Comstock; rev. and ed. by W. J. Gertsch—*Doubleday, Doran,* 729 p., $6. Of popular books on insects there is (fortunately) almost no end; good popular works on spiders are much rarer. The Comstock book, which has been a classic for a generation and more, is here brought down to date, especially as regards classification, but without disturbing its basic form, already familiar and convenient to thousands of users.

Science News Letter, April 13, 1940

METEOROLOGY

FAIR AND WARMER—Joseph Gaer—*Harcourt, Brace,* 137 p., $1.25. If you are interested in the weather (and who isn't?) but don't know how the weathermen work, this book will give a simple, clear, workable introduction to meteorology. Interest is enhanced by unusually good illustrations.

Science News Letter, April 13, 1940

ORNITHOLOGY

CANADIAN WATER BIRDS—P. A. Taverner—*David McKay Co.,* 291 p., $2.50. A companion volume to *Canadian Land Birds* by the same author, reviewed in an earlier issue (*See SNL,* Feb. 3). It has the same compactness and accuracy of description, the same good quality of illustrations.

Science News Letter, April 13, 1940

MINERALOGY

THE BOOK OF DIAMONDS—J. Willard Hershey—*Hearthside Press,* 142 p., $2. Mineralogy, geographical distribution, history of mining and of important individual stones, some of the romance attached to diamonds, all combine to make this book most interesting reading. The author also tells of his efforts to produce diamonds artificially.

Science News Letter, April 13, 1940

RADIO

BEST BROADCASTS OF 1938-39 — Max Wylie, ed.—*Whittlesey House,* 576 p., $3.50. For those who wish to read the best of what they hear. An anthology of 32 outstanding broadcasts, of various types.

Science News Letter, April 13, 1940

BIOGRAPHY

THEY DID SOMETHING ABOUT IT — Robert M. Bartlett — *Association Press,* 146 p., $1.25. Biographies of ten men and women, representing ten professions, five nations and four races: Kettering, Byrd, Benes, Nehru, Brandeis, Mary McLeod Bethune, Thomas Mann, Madame Chiang Kai-Shek, Chevalier Jackson, and Margaret Sanger.

Science News Letter, April 13, 1940

SOCIOLOGY

CIVIL SERVICE IN PUBLIC WELFARE—Alice Campbell Klein—*Russell Sage Foundation,* 444 p., $2.25. With competence and in detail the effective selection of public social work personnel through the merit system is discussed, both from the standpoint of the functions and procedures of civil service and the effective blending of the civil service system and activity in social work.

Science News Letter, April 13, 1940

GENERAL SCIENCE

EXPERIMENTING AT HOME WITH THE WONDERS OF SCIENCE—Eugene Hodgdon Lord — *Appleton-Century,* 242 p., $2. Ninety-eight experiments and tricks in various fields of science that any boy or girl could perform in a corner of the basement or attic. The author is teacher of physics and general science at the Boston Latin School.

Science News Letter, April 13, 1940

GENERAL SCIENCE

SCIENCE WITH SIMPLE THINGS—Raymond F. Yates—*Appleton-Century,* 245 p., $2.50. Experiments and demonstrations that can be performed in the home are explained and illustrated.

Science News Letter, April 13, 1940

ZOOLOGY

A CONTRIBUTION TO THE HERPETOLOGY OF FLORIDA—Archie Fairly Carr, Jr.—*Univ. of Florida,* 118 p., $1.35 (Biological Series, January 1940, Vol. III, No. 1) A carefully prepared, well documented discussion of the reptile fauna of a state particularly rich in this respect. The work is intended primarily for zoologists; there are no illustrations.

Science News Letter, April 13, 1940

ANTHROPOLOGY—JUVENILE

BLACKFELLOW BUNDI, A Native Australian Boy—Leila and Kilroy Harris—*Albert Whitman,* 63 p., $1.50. The story of a little orphaned black boy out of the Australian bush, how he adjusted his life to the ways of "whitefellow people" with whom his lot came to be cast. The authors show real and sympathetic understanding of the aboriginal child-mind.

Science News Letter, April 13, 1940

SOCIOLOGY

AMERICANS IN THE MAKING—William Carlson Smith — *Appleton-Century,* 454 p., $3.75. This "natural history of the assimilation of immigrants" presents the more general aspects of the operation of the great American melting pot. The author is professor of sociology at Linfield College.

Science News Letter, April 13, 1940

BIOGRAPHY

DR. EHRLICH'S MAGIC BULLET AND THE DISCOVERIES OF ELEVEN OTHER MICROBE HUNTERS—Paul de Kruif—*Pocket Books, Inc.,* 401 p., 25c. The 47th printing of a classic in medical popularization, its title changed from Microbe Hunters in honor of the current motion picture.

Science News Letter, April 13, 1940

ANTHROPOLOGY

THE MAYAWYAN RITUAL. 4, Property and Property Ritual—Francis Lambrecht —*Catholic Anthropological Conference, Catholic University of America, Washington, D. C.,* 216 p., $2.75. A study of property laws and concepts among a tribe in the Mountain Province of Luzon in the Philippines.

Science News Letter, April 13, 1940

SEISMOLOGY

THE VOLCANO-SEISMIC CRISIS AT MONTSERRAT, 1933-1937 — Frank A. Perret—Carnegie Inst., 76 p., paper, $2.50, cloth, $3. See page 233.

Science News Letter, April 13, 1940

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Additional Reviews On Page 239

ANTHROPOLOGY

MANKIND IN THE MAKING—M. Cathcart Borer — *Warne,* 152 p., $1.50. A really simple introduction to prehistory, for young or old. The author's experience on the staff of the Wellcome Museum plus a gift for clear explanation have produced a book that is interesting and yet does not dodge the fundamentals of anthropological science.

Science News Letter, April 13, 1940

ARCHAEOLOGY

A PILLARED HALL FROM A TEMPLE AT MADURA, INDIA, in the Philadelphia Museum of Art — W. Norman Brown — *Univ. of Penn. Press,* 88 p., $2. A discussion of the date, the original site, and the significance of the largest grouping of architectural units from a temple of India preserved in America. Aspects of Indian architecture, sculpture and symbolism shown in the rare exhibit are explained.

Science News Letter, April 13, 1940

LANGUAGE

THE WAQFIYAH OF 'AHMED PASA—Muhammed Ahmed Simsar—*Univ. of Penn. Press,* 203 p., $3. Translation and discussion of one of the rare copies of a Turkish trust deed, important in Islam. This long manuscript, dated to correspond to our year 1511, is in the Oriental collection of the Free Library of Philadelphia. Endowing two mosques and a soup kitchen as religious foundations, the donor outlines strictly how they are to be administered.

Science News Letter, April 13, 1940

EXPLORATION

NEW GUINEA EXPEDITION, Fly River Area, 1936-1937—Richard Archbold and A. L. Rand — *McBride,* 206 p., $3. A swiftly moving narrative of the experiences of two museum naturalists, collecting rare bird, animal, and plant specimens in a fantastic land. Excellent photographs throng the pages, showing New Guinea's varied native types and how they reacted to the white men's airplane and helped the visitors in many ways.

Science News Letter, April 13, 1940

CHEMISTRY

CHEMICAL COMPUTATIONS AND ERRORS —Thomas B. Crumpler and John H. Yoe—*Wiley,* 247 p., $3. Every scientist needs to interpret properly the measurements which he may make in an experiment. While written for students of chemistry, this book is useful to physicists and all other scientists who must deal with large masses of data.

Science News Letter, April 13, 1940

CHEMISTRY

THE DETECTION AND IDENTIFICATION OF WAR GASES—Great Britain, Ministry of Home Security, Air Raid Precautions Dept.—*Chemical Pub. Co.,* 53 p., $1.50. From England's A.R.P. comes probably the best, condensed modern summary of poison gases and their detection which is now to be found in print.

Science News Letter, April 13, 1940

ENTOMOLOGY

VOICES FROM THE GRASS—Julie Closson Kenly—*Appleton-Century,* 248 p., $2. Stories of insects and other creeping things, in all their charm and terror, made vivid, even dramatic, in the telling, yet without sacrifice of essential accuracy. Particularly valuable, to the reader with eyes a-goggle over the marvels he has been told throughout the rest of the book, should be the coolly objective final chapter, "Can Insects Reason?"

Science News Letter, April 13, 1940

LIBRARY SCIENCE

BUSINESS AND THE PUBLIC LIBRARY, Steps in Successful Cooperation—Marian C. Manley, ed.—*Special Libraries Assoc.,* 83 p., $2. Library service for the business man becomes increasingly important and, particularly in industrial cities, libraries have built up excellent departments to meet his many and varied needs. This manual describing needs and methods of business departments includes lists of business guides, periodicals and directories.

Science News Letter, April 13, 1940

BIBLIOGRAPHY

READER'S GUIDE TO PROSE FICTION—Elbert Lenrow—*Appleton-Century,* 371 p., $3. A topically classified, descriptive bibliography of 1500 novels including both classic and modern works.

Science News Letter, April 13, 1940

ANTHROPOLOGY—JUVENILE

RED TASSELS FOR HUKI IN PERU—Anna Andrews Barris—*Albert Whitman,* 62 p., $1.50. Charmingly told and even more charmingly illustrated is this story of a young llama that ran away—and lived to be most heartily glad to get back to his master.

Science News Letter, April 13, 1940

PHYSICS

COSMIC RAYS AND MESOTRONS—H. J. J. Braddick—*Cambridge (Macmillan),* 68 p., $1.50. This little book summarizes the applications of quantum theory to cosmic rays and shows how many previously unrelated phenomena have fallen into their proper place in this complex field by the use of this theory. The first chapters review the experimental facts of cosmic rays and the later chapters the explanation of these facts in terms of properties predicted by quantum theory for moving charged particles.

Science News Letter, April 13, 1940

ENGINEERING

CAN WE BUILD AUTOMOBILES TO KEEP DRIVERS OUT OF TROUBLE? (2d. ed.)—Victor W. Killick—*Reeves Pub. Co.,* 92 p., $1. Suggestions for changes in automobile design which the author claims would increase their safety.

Science News Letter, April 13, 1940

EDUCATION

AUDIO-VISUAL AIDS TO SCHOOLS, COLLEGES, CHURCHES, AND ADULT STUDY GROUPS—Educational Film Library and Lantern Slide Loan Service—*University Extension Division, Chapel Hill, N. C.,* 94 p., 50c. Available motion pictures, both sound and silent 16-mm. films, may be rented by schools, clubs or individuals, in North Carolina and vicinity. This conveniently-arranged listing will be valuable to others, too far away to utilize the University's loan service, however, for it gives the original source of the films.

Science News Letter, April 13, 1940

ENGINEERING

THE ELECTRIC POWER ENGINEERS' HANDBOOK — W. S. Ibbetson — *Chem. Pub. Co.,* 241 p., $5. Collected information on power circuits and apparatus, and their operation.

Science News Letter, April 13, 1940

PHYSICS

SOME PROBLEMS IN ADSORPTION—J. K. Roberts—*Cambridge (Macmillan),* 120 p., $2. Quantum mechanical treatment of the problem of adsorption of gases on surfaces. Strictly for the research expert.

Science News Letter, April 13, 1940

PHYSICS—CHEMISTRY

ELASTICITÉ ET PHOTOÉLASTICIMÉTRIE—Henri Le Boiteux and Robert Boussard —*Hermann & Cie, Paris,* 361 p., 180 fr.

Science News Letter, April 13, 1940